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P. Hamolka (sp) / I. Vrublevsky / V. Sokol / L. Hamolka / D. Shimanovich

Electrodeposition of High Aspect Ratio Nickel Nanowires in Porous Alumina Templates

FUNCTIONALIZATION OF MATERIAL SURFACES

Process of electrodeposition of high aspect ratio (20-µm-long) nickel nanowires in porous aluminum oxide templates was developed. The effect of several plating parameters on the uniformity and regularity of nickel electroplating into porous alumina templates grown in oxalic acid was investigated.

In our experiment we studied the effect of barrier layer thickness thinning potential, ac deposition voltage, continuous or pulsed deposition and electrolyte concentration on the quality of pore-filling in porous alumina templates grown in oxalic acid. We found pulsed ac conditions enabling the filling of acid anodized pores with deepness of 20 µm. Filled pores were investigated using scanning electron microscopy (SEM) of pore cross sections and of as-deposited surfaces.

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